

ORIGINAL RESEARCH

# Near-Peer Emergency Medicine for Medical Students in Port-au-Prince, Haiti: An Example of Rethinking Global Health Interventions in Developing Countries

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## Abstract

**BACKGROUND** During a 3-year time frame, a partnership between medical trainees in Haiti and the United States was forged with the objective of implementing an emergency response skills curriculum at a medical school in Port-au-Prince. The effort sought to assess the validity of a near-peer, bidirectional, cross-cultural teaching format as both a global health experience for medical students and as an effective component of improving medical education and emergency response infrastructure in developing countries such as Haiti.

**METHOD** Medical students and emergency medicine (EM) residents from a North American medical school designed and taught a module on emergency response skills in PAP and certified medical students in basic cardiac life support (BLS) over 2 consecutive years. Five-point Likert scale self-efficacy (SE) surveys and multiple-choice fund of knowledge (FOK) assessments were distributed pre- and post-module each year and analyzed with paired *t* tests and longitudinal follow-up of the first cohort. Narrative evaluations from participants were collected to gather feedback for improving the module.

**FINDINGS** Challenges included bridging language barriers, maintaining continuity between cohorts, and adapting to unexpected schedule changes. Overall, 115 students were certified in BLS with significant postcurriculum improvements in SE scores ( $2.75 \pm 0.93$  in 2013 and  $2.82 \pm 1.06$  in 2014;  $P < 0.001$ ) and FOK scores ( $22\% \pm 15\%$  in 2013 and  $41\% \pm 16\%$  in 2014;  $P < 0.001$ ). Of 24 Haitian students surveyed at 1-year follow-up from the 2013 cohort, 7 (29.3%) reported using taught skills in real-life situations since completing the module. The US group was invited to repeat the project for a third year.

**CONCLUSIONS** Near-peer, cross-cultural academic exchange is an effective method of medical student-centered emergency training in Haiti. Limitations such as successfully implementing sustainability measures, addressing cultural differences, and coordinating between groups persist. This scalable, reproducible, and mutually beneficial collaboration between North American and Haitian medical trainees is a valid conduit for building Haiti's emergency response infrastructure and promoting global health.

**KEY WORDS** prehospital care, first responder, medical education, resuscitation, trauma, Haiti, global health

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The authors declare they have no conflicts of interest.

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## INTRODUCTION

The need to improve emergency response capacity in low- and middle-income countries (LMICs) is well documented.<sup>1,2</sup> In Haiti, 84% of college graduates emigrate to other nations, contributing to a shortage of physicians and weakening health care delivery infrastructure.<sup>3,4</sup> Current medical students in Haiti remain an untapped and critical resource for local health care capacity improvement. Medical Students for Haiti (MS4H) is a nonprofit organization founded by Haitian-American medical students seeking to educate and engage Haitian medical students through a cross-cultural, near-peer teaching platform to improve health care capacity and health outcomes in Haiti.

Three years ago, several student members of MS4H at the Icahn School of Medicine at Mount Sinai (ISMMS), New York City, set out to respond to a request from students and faculty at Université Quisqueya (UniQ) for help restructuring their curriculum in a way that enhanced its clinical focus. The US students designed a project that was within the purview of their skills set by offering short courses that would be taught by medical students with as much faculty oversight and advice as was freely offered. Near-peer teaching is an established, effective teaching method used in several settings by Western medical schools. Examples include residents teaching medical students on the clinical wards and senior students mentoring junior students in basic science curricula.<sup>5–9</sup> Some argue that the value of near-peer teaching is the inexperience of the teachers, allowing them to communicate complex concepts in ways that are readily understandable by newer learners. This platform was chosen for its potential sustainability and in an effort to implement an ethically sound global health intervention at the medical school level.<sup>10</sup>

## METHODS

MS4H's first intervention was a 4-week foundational anatomy course that excited students and faculty at UniQ enough that MS4H was asked to produce another course shortly afterward. In an effort to engage and empower Haitian medical students directly, students were asked if emergency medicine (EM) was a desirable subject, and then asked which emergencies they felt most likely to witness. To a list of basic emergency types, topics added included traumatic brain injury, stroke/ altered mental status, and penetrating/gun-shot

wounds. This kind of feedback and collaboration with students and faculty at UniQ ensured that the intervention was tailored to the needs of the recipient.

At ISMMS, second-year medical students who are basic cardiac life support instructor certified (BLS-IC) by the American Heart Association (AHA) teach and certify incoming first-year medical students in BLS, and recertify graduating fourth-year students continuing on to residency. MS4H expanded on this near-peer teaching concept by implementing a 1-week near-peer–led combined EM module and AHA BLS certification course at UniQ in Haiti in March 2013 and March 2014 in an attempt to equip Haitian medical students with the skills needed to better respond to emergency situations. The Regional Emergency Medical Services Council of New York City (REMSCO) is the AHA International and BLS certification office associated with ISMMS. REMSCO supplied curricular resources and quality oversight to certify as many as 85 UniQ students per year. Aspects of the BLS curriculum inapplicable to the low-resource setting in Haiti, such as the use of defibrillators in the field and calling “911” were modified or omitted. Certification comprised of a written examination provided by REMSCO as well as an observed practical skills examination by BLS-IC. Each of these is a component required by the AHA to certify a participant in BLS. The required student-to-instructor ratio of 3:1 was observed. The 1-week near-peer–led combined EM module and AHA BLS certification course is the first step in a multiphase, longitudinal platform that aims to train Haitian medical students as future peer trainers. This platform ultimately aims to build more sustainable, bidirectional programs for North American and Haitian medical students (Fig. 1).

To assess effectiveness of the educational model, before and after fund-of-knowledge (FOK) tests and self-efficacy (SE) surveys were distributed to UniQ students. The FOK exam consisted of 27 multiple-choice questions (MCQ) derived from EM course material and reviewed by EM faculty before test administration. The same FOK exam was revised by supervising faculty to a 21-item MCQ examination used in 2014. The SE survey consisted of a 26-item, 5-point Likert Scale survey with a response of 1 indicating *not comfortable at all* and 5 signifying *extremely comfortable* with the corresponding skill. Twenty-four students from the 2013 UniQ cohort were given a follow-up survey in 2014 to assess whether skills learned in the

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